Claims

1. Carrier system for the cell-specific, intracellular enrichment of at least one pharmacologically active substance, characterized in that said carrier system is present in the form of nanoparticles based on protein, preferably based on gelatine and/or serum albumin, particularly preferably based on human serum albumin, and that it has structures that are coupled by means of reactive groups, said structures enabling a cell-specific attachment and cellular absorption of the nanoparticles.

2. Carrier system according to claim 1, characterised in that the reactive group is an amino, thiol, carboxyl group, or an avidin derivative.

3. Carrier system according to claim 1 or 2, characterised in that the coupled structure is an antibody.

4. Carrier system according to claim 3, characterised in that the antibody is a monoclonal antibody.

5. Carrier system according to any one of the preceding claims, characterised in that it additionally comprises a pharmaceutically active substance that is bound to the carrier system by means of the reactive groups by adsorption, incorporation or covalent or complexing bonds.

6. Use of a carrier system according to any one of the preceding claims for producing a medicament for enrichment of a pharmaceutically active substance to/in specific cells.

7. Method for producing a carrier system in the form of protein-based nanoparticles for the cell-specific enrichment of at least one pharmacologically active substance, characterised in that it comprises the following steps:

- Desolvating an aqueous protein solution,
- stabilising the nanoparticles formed by the desolvation, by crosslinking,
- converting part of the functional groups on the surface of the stabilised nanoparticles to reactive thiol groups,
- covalently attaching functional proteins, preferably avidin, by means of bifunctional spacer molecules,
- if required, biotinylating the antibody,
- loading the avidin-modified nanoparticles with the biotinylated antibody,
- loading the avidin-modified nanoparticles with a biotinylated and pharmaceutically or biologically active substance.

8. Method according to claim 7, characterised in that the protein base is gelatine and/or serum albumin, preferably human serum albumin.

9. Method according to claim 7 or 8, characterised in that the desolvation is carried out by stirring and addition of a water-miscible non-solvent for proteins, or by salting-out.

10. Method according to claim 9, characterised in that the water-miscible non-solvent for proteins is selected from the group comprising ethanol, methanol, isopropanol and acetone.

11. Method according to any one of claims 7 to 10, characterised in that thermal processes or bifunctional aldehydes or formaldehyde are/is utilised for stabilising the nanoparticles.

12. Method according to claim 11, characterised in that glutaraldehyde is used as bifunctional aldehyde.

13. Method according to any one of claims 7 to 12, characterised in that as the thiol group-modifying agent a substance is used that is selected from the group comprising 2-iminothiolane, a combination of 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide and cysteine, or a combination of 1-ethyl-3-(3-dimethylaminopropyl)-carbodiimide and cystaminium dichloride as well as dithiotreitol.

14. Method according to any one of claims 7 to 13, characterised in that as bifunctional spacer molecule a substance is used that is selected from the group comprising m-maleimidobenzoyl-N-hydroxysulfosuccinimide ester, sulfosuccinimidyl-4-[N-maleimido-methyl]cyclohexane-1-carboxylate, sulfosuccinimidyl-2-[m-azido-o-nitrobenzamido]-ethyl-1,3´dithiopropionate, dimethyl-3,3´-dithiobispropionimidate-dihydrochloride and 3,3´-dithiobis[sulfosuccinimidylpropionate].